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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,149	09/21/2001	Shigemi Kohiki	TAN-295	6361

7590 10/14/2003

Sherman & Shalloway
413 N Washington Street
Alexandria, VA 22314

EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,149

Applicant(s)

KOHIKI ET AL.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Application Filed 09/21/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/21/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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Detailed Action

This is 371 of PCT/JP00/01866 filed 03/27/2000. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claims 2-3 are currently pending with the application.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892 and/or the applicant has submitted the references on PTO-1449, they have not been considered. The International search report has been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claim 3 rejected under 35 U.S.C. 102(b) as being anticipated by Kohiki et al (Appl. Phys. Lett. 1994, 64(21), pp 2876-2878).

Kohiki et al teach the enhancement of the conductivity of Zinc Oxide through doping of hydrogen ions by ion implantation of highly resistive thin films deposited by RF magnetron sputtering, and by annealing the sample at 200°C in N₂ atmosphere (Abstract). Walle et al (Appl. Phys. Lett. 2000, 85(5), pp 1012-1015) disclose the wurtzite phase of the ZnO to be the stable phase for ZnO (Page-1012, Column-2, Lines: 12-13), and this reference is being used to establish stable crystalline structure of the ZnO target material, and not as a primary reference for the rejection of the claim. Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to:

- (A) Prove the primary reference contains an “enabled disclosure; ”
- (B) Explain the meaning of a term used in the primary reference; or
- (C) Show that a characteristic not disclosed in the reference is inherent. (See MPEP 2131.01).

It is the examiners position that the method of implanting Hydrogen into ZnO used by Kohiki et al is the same as that used by the applicants (See Specification, Pages-11-12, Example-3) and the stable phase of ZnO being wurtzite as shown by Walle et al, the limitation of “*H-introduced into a vacant point of ZnO with wurtzite structure*” by the applicants in claim-3 would be inherent. All the limitations of the instant claims are met.

The reference is anticipatory.

Claim 2 rejected under 35 U.S.C. 102(a) as being anticipated by Ryuta et al (Nippon Kagaku Kaishi (1999, Vol-5, pp-323-327).

Ryuta et al disclose the preparation and properties of lithium doped indium oxide wherein the peaks from the cubic structure showed an increased lattice constant from 10.116 Angstrom to 10.163 Angstrom upon varying the Li/In₂O₃ ratio from 0 to 0.4 and XPS showed the doping of Lithium at 8a or 16c sites of In₂O₃ crystal that meets the limitations of the instant claim-2. The disclosure by Sasaki et al (Abstract) corroborates the results on lattice expansion of In₂O₃ upon doping by Li and this reference is not being used in the rejection of the claim.

It is the examiners position that the method of making lithium doped In₂O₃ samples by Ryuta et al by the calcination of dried powders obtained from aqueous solutions of InCl₃ with Li that is similar to the method of preparation of the claimed materials by the applicants (See Specification, Pages 6-7, Example-1), and by virtue of the X-ray and XPS data by Ryuta et al, the doping sites the In₂O₃ and the crystal lattice limitations of the oxide by the applicants in the instant claim-2 would be inherent.

All the limitations of the instant claims are met.

The reference is anticipatory.

Conclusion

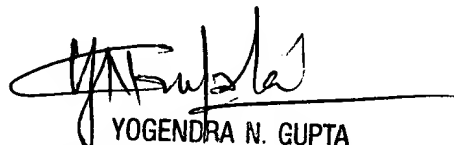
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 703-305-4931. The examiner can normally be reached on M-Th, 07.30 - 17.00 hrs, Alt. Fri: 07.30-16.00 hrs.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 703-308-4708. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Kmv
September 24, 2003.



YOGENDRA N. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700